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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,856	12/22/2003	Rafael L. Espinoza	1856-24401 (9600.0-01)	9101

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EXAMINER

PARSA, JAFAR F

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,856

Applicant(s)

ESPINOZA ET AL.

Examiner

Jafar Parsa

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/28/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

PD

DETAILED ACTION

Applicant's election with traverse of Group III in the reply filed on 5/6/2005 is acknowledged. The traversal is on the ground(s) that claims 7 and 11 both depend from elected claim 1, which is assigned to Group III, i.e. that it is not appropriate to assign dependent claims 7-17 to another group. This is not found persuasive because claims 7-17 recite process steps for preparing a catalyst. Process for preparing a catalyst are classified in a different class and subclass than process for the production of a hydrocarbon and considered as a different and distinct inventions. The MPEP does not explicitly state that the dependent claims cannot be restricted from their independent claims.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plecha et al (USPN 6,124,367) in view of Geerling et al (USPN 6,130,184).

Applicant invention relates to a process for producing hydrocarbons, comprising: contacting a feed stream comprising carbon monoxide and hydrogen with a bulk cobalt-based catalyst so as to convert at least a portion of said feed stream to hydrocarbons, wherein the bulk cobalt-based catalyst comprises an average cobalt oxide crystallite size between 10 and 40 nm, and has a surface area between 10 and 150 m²/g, and further comprises between 40 and 90 percent by weight of cobalt; a textural promoter selected from the group consisting of zirconium, chromium, magnesium, cerium, and titanium; optionally, a Group I metal; and between 5 and 60 percent by weight of a binder selected from the group consisting of silica, alumina, titania, zirconia and combinations thereof.

Plecha teaches a process for making hydrocarbons by contacting synthesis gas with a cobalt catalyst in amount of 2-40 wt % and a promoter selected from the group consisting of zirconium, titanium, rhenium, hafnium, cerium, thorium and uranium. When promoters are employed, they are used in quantities less than active metal, e.g. in weight ratio of about 1/20 to 1/10 based on the active metal (see col.3, lines1-25).

Plecha teaches that both silica and alumina are employed as binders for a titania containing support to achieve the integrity required of a catalyst used in Fischer-Tropsch synthesis. The catalyst is formed by dispersing one or more metals active for Fischer-Tropsch synthesis, e.g., Group VIII metals such as cobalt or ruthenium, over the surface of the support. Thus, a high-strength--as measured by attrition resistance--

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catalyst is formed that maintains its integrity under conditions of relatively high water partial pressure at elevated temperatures (see col. 1, lines 39-49).

Plecha teaches that the titania supports were prepared by spray-drying mixtures of various binders. Dried supports were calcined between 700⁰ C. and 1000⁰ C. in rotary calciners. The amount and source of the alumina binder and of the silica binder, the wt % solids in the spray-drier feed, and the final calcination temperature, used for each of these twelve supports are summarized in Table 1. The alumina chlorhydrol sol was made by GRACE Davison, designated as CX-100, and contained about 23.5 wt % Al₂O₃. Analytical inspections are also shown in Table 1, including the data from 30 minute sonic attrition tests. The rutile content refers to the weight percent of the rutile phase in the titania, with the balance being the anatase phase, determined by X-ray diffraction (ASTM D 3720-78). SA refers to the BET surface area and PV refers to the pore volume of pores less than about 5000 angstroms in diameter, measured by mercury porosimetry (see col. 4, lines 15-33 and Table 1). The cobalt oxide crystallite size of 10-40 nm is an inherent characteristic of the cobalt oxide, which is disclosed by Plecha et al.

The difference between Plecha and independent claim 1 is that the reference only suggests that the loading of cobalt metal is in amount of 2 to 40 wt %, whereas the examples employ only up to 12 wt % cobalt. However, Geerlings teaches that it has now been found that mechanically strong catalysts with a high loading of cobalt at least 70 % by weight and an excellent performance can be prepared by a relatively simple process. In particular, it has been found that the mixing of a partially insoluble cobalt

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compound, a liquid, and titania prior to shaping, drying and calcining results in a mechanically strong catalyst having a very good activity and C₅₊ selectivity when used in the process for the preparation of hydrocarbons (see col. 1, lines 59-67 and col. 2, lines 40-45). Geelrings teaches that the cobalt compound which is at least partially insoluble in the liquid may be obtained by precipitation. Any precipitation method known in the art may be used. Preferably, the cobalt compound is precipitated by addition of a base or a base-releasing compound to a solution of a soluble cobalt compound, for example by the addition of sodium hydroxide, potassium hydroxide (see col. 3, lines 7-17). It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to increase the weight percent of the cobalt metal in the catalyst, in order to obtain mechanically a strong catalyst having a very good activity and C₅₊ selectivity.

The examiner notes that many of the dependent claims recite steps that are directed to a process for preparing the catalyst, whereas the elected subject matter relates to a process for preparing hydrocarbons using the cobalt containing catalyst. Therefore, the examiner has not given any patentable weight to the steps of making the catalyst in the absence of showing that these steps are critical in comparison to the catalyst made by the references cited above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jafar Parsa whose telephone number is (571)272-0643. The examiner can normally be reached on 8 a.m.-4:30 p.m. (M-F).

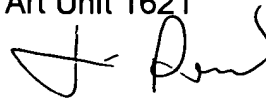
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on (571)272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JP
June 11, 2005

Jafar Parsa
Primary Examiner
Art Unit 1621



J. PARSA
PRIMARY EXAMINER